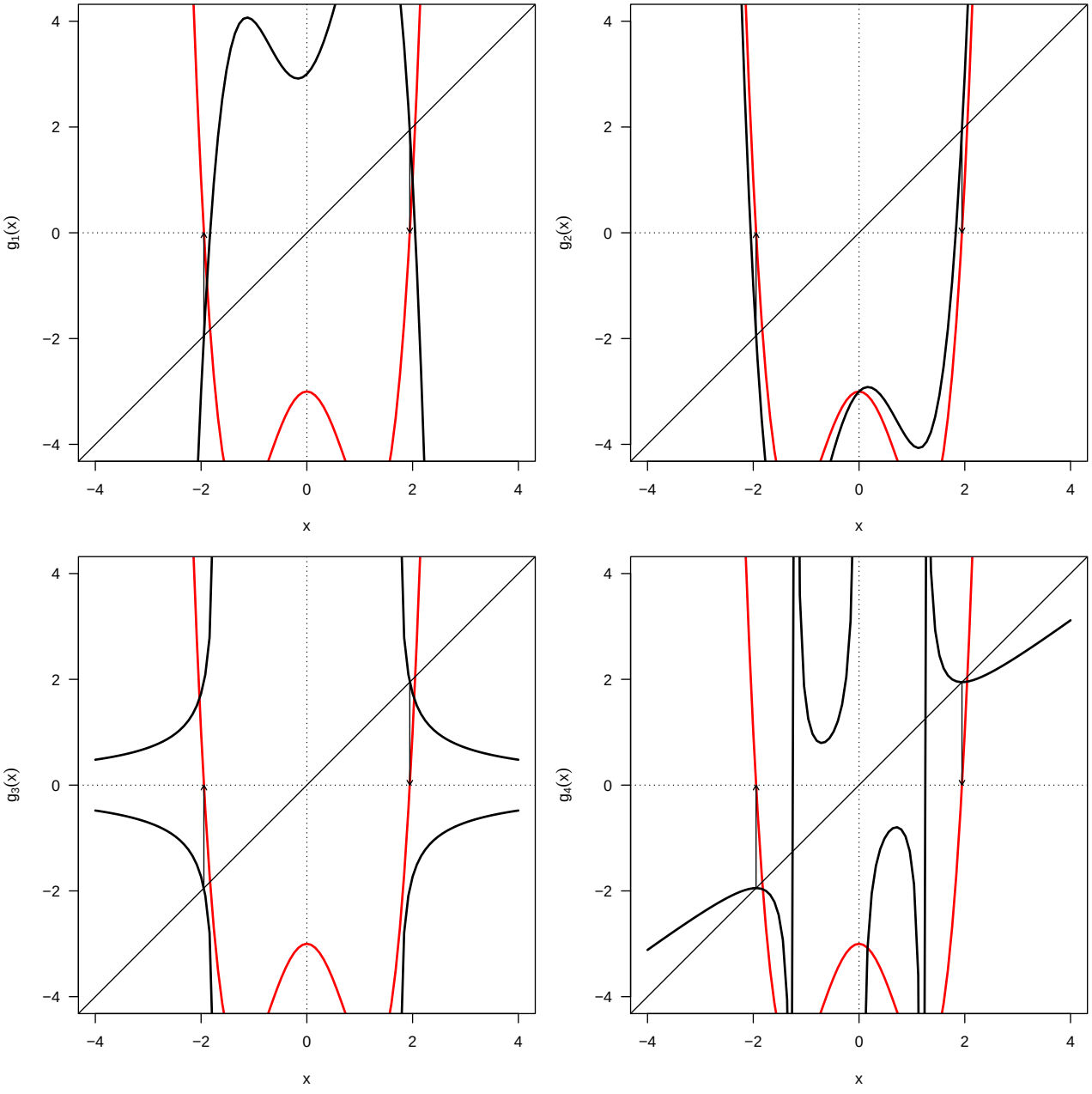
Consider the root-finding problem $f(x) = x^4 - 3x^2 - 3$. It has many different, but equivalent, fixed-point problems.

$$g_1(x) = x - f(x) = x$$
$$g_2(x) = x + f(x) = x$$
$$g_3(x) = \sqrt{\frac{3}{x^2 - 3}} = x$$
$$g_4(x) = x - \frac{x^4 - 3x^2 - 3}{4x^3 - 6x}$$



A better formulation is given by

$$g_5(x) = \sqrt[4]{3x^2 + 3}$$